

## **REMARKS**

### **I. Amendments**

Applicants submit herewith an amendment to the claims, in which Claims 9, 11, 16 to 18 have been cancelled, and Claims 1, 10, 12 and 14 have been amended. Applicant submits that the amended claims overcome the Examiner's rejection in the Office Action dated March 21, 2006, based on the submissions below.

### **II. Rejections under 35 USC § 102 (b)**

#### ***A. General Rejections***

Claims 1-8, 10, and 12-15 stand rejected under 35 U.S.C. § 102 (b) as being anticipated by U.S. Patent 3,797,666 to Nakanishi et al. ("Nakanishi"), U.S. Patent 6,391,448 to Geiser ("Geiser"), and U.S. Patent 4,115,266 to Ohshima ("Ohshima").

The Examiner has made a blanket citation to Ohshima referring to the abstract, column 2 lines 1-25 and column 4 lines 47-45.

The Examiner has similarly made a blanket citation to Geiser pointing generally to the abstract, the figures, the summary of the invention, column 2 "bottom" and column 3 lines 1-35.

Applicants note that the Examiner has not provided enough detail for the basis of the rejection under 35 U.S.C. § 102 (b). "A claim is anticipated only if each and every elements as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegall Bros. v. Union Oil Co. of California*, 2 USPQ.2d 1-51, 1053 (Fed. Cir. 1987). In this connection Applicants cannot reasonably determine the basis of the rejection with the general citation to the references as issued by the Examiner. Notwithstanding the lack of clarity in the Examiner's rejection each reference cited will be considered in the sequence raised by the Examiner.

#### ***B. The Nakanishi Reference***

The Examiner has not indicated which passages of text or which drawings in the figures are alleged to disclose all the teachings of each claim now on file in the application. In this connection the Applicants raise an objection to the form of the

Examiner's rejection styled in a general form and request that the Examiner specifically point out the basis for the rejection.

Notwithstanding the lack of clarity for the basis upon which the Examiner relies on Nakanishi, Applicants note that Nakanishi is directed to factory industrial waste and relates to the separation of fine oil droplets and sludge suspended in liquid using an apparatus that comprises a chamber packed with "packing pieces". Such "packing pieces" are identified as being small pieces cut from a polyolefin fiber web. The separation is stated to be achieved by a combination of a "fluidized phase" (flow of the liquid between the packing pieces) and a "fixed phase" (retention of the droplets etc. within the packing pieces), with "voids" within the packing pieces. After significant accumulation of the retained material, it is removed from the packing pieces by backwashing, which allows for reuse of the packing pieces. As such, Nakanishi requires a specific additional step is required to clean the packing pieces for such reuse.

Nakanishi does not teach or disclose a self-cleaning feature of the particulate materials according to the present invention. This feature, described on page 6 of the Specification, in the definition of "reusable", is now expressly stated in amended Claim 1 submitted herewith, to clarify the full meaning of the term "reusable".

It is stated that the packing pieces are preferably cubes, but can also be right parallelepipeds or spheres. Nakanishi does not teach or disclose an appropriate size range for the pieces, much less of the ranges taught by the present invention. Instead Nakanishi discloses that the size ranges contemplated therein are much larger than those of the present invention, and there is no teaching whatsoever of any dimension being in the nanoscale, as in the present invention.

Further, it is particularly significant that there is absolutely no teaching in the reference that the edges of the pieces should be "ragged", and the fact that the packing pieces are cut is clearly incompatible with the "ragged edges" of the present invention.

Still further, although the indicates the use of a polyolefin fiber web, and Table 4 indicates for example the use of polypropylene, there is no teaching of the specific ranges of materials which are identified in the present application as being suitable for the present invention.

Applicants therefore respectfully submit that amended Claim 1 is not anticipated by the teachings of Nakanishi et al. As each of the remaining claims is ultimately dependent on Claim 1, none of these can be regarded as anticipated by this reference.

**C.     *The Geiser Reference***

In citing to Geiser, the Examiner has referred to, *inter alia*, the summary of the invention from the bottom of column 2 to column 3, to line 35. As stated above, Applicants are unclear as to the basis the Examiner's rejection in connection with the Geiser reference, and therefore again raise an objection to the use of a general rejection format in the Office Action.

Also notwithstanding the lack of clarity in the rejection, Geiser discloses the use in water purification beds of disc-shaped beads made of water-insoluble polymeric material. The disclosure suggests preferred dimensions including a major axis as 4 to 6mm, and a minor axis of 3 to 5 mm. In addition, the beads of as taught by Geiser are stated to be scarified, and subsequently grooved, preferably by being rolled into disc shapes and the grooves applied at the same time to the circular major surface.

Scarifying is a process used in various arts, but in each case comprises a slitting process, used to penetrate a hard outer coating (for example, in agriculture to comprise the slicing into a plant seed casing; or in civil engineering to comprise the slicing into a concrete surface for fracture and subsequent removal). In other words, scarifying is a slitting operation directed at a substantially planar surface. The abstract of Geiser recites the use of a scarifier to roughen the surfaces, and the figures and the statement of invention make it clear that the surface which is subjected to the scarifying process is the flattened major (substantially circular) surface of the disc shapes, i.e. the scarifying is directed to a slitting of the main surface to create the profiling of the grooves. Geiser does not, however, teach or disclosed ragged edges according to the present invention.

The Examiner is further referred to column 3, lines 55 to 67, where it is expressly stated that although the surface loses its sheen and looks fuzzy when viewed under magnification, no significant amount of material is removed. This precludes any interpretation of the scarifying process as being capable of creating the ragged edges of

the present invention and therefore Geiser actually teaches away from the present invention.

Furthermore, Geiser does not teach or discloses any significance of the materials and dimensions as identified by the present invention. The mere possibility of a minor overlap or inclusion in a physical dimension or a list of materials cannot be regarded as a teaching of a specific range or group, where the cited reference does not identify the specific significance or function as taught by the invention in the subject application to which the cited reference is being applied.

Finally, there is no indication in Geiser that its teachings could feasibly (much less desirably) be applied to a particle having a dimension in the nanoscale.

Applicants therefore respectfully submit that independent amended Claim 1 is not anticipated by the teachings of Geiser. As each of the remaining claims is ultimately dependent on Claim 1, none of these can be regarded as anticipated by this reference.

***D. The Ohshima Reference***

Applicants once again raise an objection to the Examiner's general rejection based on the Ohshima reference. It is unclear how the Examiner applies the Ohshima reference to cite each and every claim limitation in the rejected claims.

Notwithstanding the Examiner's continued lack of clarity for the basis of the rejection, Ohshima discloses the use of a "filling material" having a true or apparent specific gravity lower than or equal to that of the raw liquid (to be separated) as a "filtering material" (col. 2, lines 10-13 and claim 1). The filtering material, which is preferably in the form of flakes, mat-like small pieces, porous lumps, pellets, etc (col. 2, lines 16-18), is, for example, atactic polypropylene, to which the substances to be separated adhere. However, Ohshima does not teach or suggest the ragged edges for the particulate material of the present invention.

Furthermore, in identifying the preferred dimensions for the filtering material particles, the reference states that these are preferably 3mm or larger. Although Ohshima discloses that a mixture of those having various sizes of about 1 to 50 mm may be employed (col. 4, lines 52-55), the different dimensions in the Examples are not

discussed or attributed any relevance to the teachings of the reference, which entirely fails to teach the significance of the dimensions as identified by the present invention, much less the particular significance of at least one dimension being in the nanoscale.

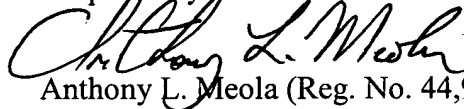
Applicants therefore respectfully submit that independent amended Claim 1 is not anticipated by the teachings of Ohshima. As each of the remaining claims is ultimately dependent on Claim 1, none of these can be regarded as anticipated by this reference.

**III. Conclusion**

Applicants therefore respectfully submit that none of the cited references anticipates any of the pending claims and respectfully requests withdrawal of the rejections.

Should any further fees or payments be necessary for entry of this amendment and further prosecution of this application, the undersigned hereby authorizes the Commissioner to debit and/or credit our Deposit Account No. 11-0404 referencing our client matter no. 016778.0001.NPUS00.

Respectfully submitted,

  
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